Digitized by the Internet Archive
in 2013

http://archive.org/details/superintendentso234unse

10-23
(May, 1929)

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Yellowstone NATIONAL PARK

FILE NO. 143

MONTHLY REPORT
FEBRUARY, 1934

IMPORTANT

This file constitutes a part of the official records of the National Park Service and should not be separated or papers withdrawn without express authority of the official in charge. All Files should be returned promptly to the File Room. Officials and employees will be held responsible for failure to observe these rules, which are necessary to protect the integrity of the official records.

HORACE M. ALBRIGHT,
Director.

U. S. GOVERNMENT PRINTING OFFICE 1929 6—7410

DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS & RESERVATIONS
NATIONAL PARK SERVICE
YELLOWSTONE NATIONAL PARK
YELLOWSTONE PARK, WYO.

OFFICE OF THE SUPERINTENDENT

March 5, 1934

The Director
Office of National Parks
Buildings & Reservations,
Washington, DC

Dear Mr. Director:

Following is the monthly report of activities for Yellowstone National Park for the month of February, 1934.

000 - General

Another record for weather was broken as February, 1934, was the warmest February on record for Mammoth. That makes four months out of the last five that have been record breakers, the others being October, December, January. The mean temperature for the month was 28.8 which is over one degree higher than previous warmest February and 2.3° warmer than the March normal.

If the weather stays as mild as it has been we hope to start on some of our Public Works projects and thus use some of the CW labor which we must lay off.

Due to the very mild winter, the sub-normal snow fall in the park, and to persistent rumors that the road from West Yellowstone to Ashton is open, several chambers of commerce of Wyoming have requested that we begin now to open the park roads from the east entrance to West Yellowstone. However, we do not believe it practicable to open the roads in the park this early, as it means manning the stations, and providing means for supplying the travelers with gas, oil, food and shelter along the way, in addition to the added expense of keeping the roads opened and patrolling them once they are opened. Furthermore, the road from West Yellowstone to Ashton has not yet been opened, as the Targhee Pass is still blocked with snow.

We wish to call you special attention to the snow report for this month. It will be noted that not only are the snow depths below normal, but the water contents are below normal as well. Unless we get considerable rain during the coming summer, the snow reports indicate another dry summer.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

C20 - General Weather Conditions

A general summary of weather conditions will be found at the back of this report.

C21 - In the Park

The weather for February has been generally fair and for most of the month unusually mild.

The road from Mammoth to Soda Butte was kept open throughout the month. The road from Mammoth to Golden Gate was also opened up for the contractor during the month. All other roads in the park are closed.

The following tables show the snow depths in inches at the end of February comparatively for the past three years. There is also shown water content of the snow at the six different cooperative weather stations throughout the park as well as the water content measurements taken by the Reclamation Service at the Snake River watershed

Yellowstone Drainage:	1932	1933	1934
Buffalo Ranch	24	24	3
Canyon	36	66	30
Cooke	30	41	31
Cold Creek	30	49	17
Upper Slough Creek	24	46	14
Lower " "	24	46	13
Tower Falls	23	24	4
Hellroaring	26	22	2
Soda Butte	14	14	drifts only
Thorofare	36	38	18
Lower Miller Creek	24	36	12
Upper " "	30	49	23
Lake	32	38	20
Cabin Creek	30	28	12
Park Point	30	40	18
Cache Creek	40	60	36
Crystal Springs	36	48	30
Mammoth	12.4	12.4	drifts only
Madison Drainage:			
Old Faithful	46	64	31
Fountain	34	26	16
Madison Junction	34	20	15
West Yellowstone	38	43	23
Norris	40	40	20
Grayling	36	54	18

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Snake River Drainage:	1932	1933	1934
Two Ocean Plateau	88	90	45
Snake River	43	70	41
Snake River - 7 Mile Post	83	103	65
Fox Creek	30	73	36
Aster Creek	68	86	60
Bechler River	64	79	43
Cascade Creek	85	102	65
Boundary Creek	66	75	45
South Riverside	84	90	60
Gallatin River Drainage:			
Gallatin Station	27	38	20
Shoshone River Drainage:			
Sylvan Pass Station	39	45	22
Sylvan Pass Proper	70	15 to 25 ft. drifts	7 ft. drifts

The following figures on water content of snow in the Snake River drainage are of interest:

Location:	Normal		Feb.-1933		Feb.-1934		Feb.-1927	
	Snow In.	Water In.	Snow In.	Water In.	Snow In.	Water In.	Snow In.	Water In.
Snake River Station	51	14.5	69	16	30	12	69	23
Colter Creek	55	15.9	73	19	42	15	75	25
Aster Creek	66	20.8	79	24.5	48	17	98	37
Lewis River Divide	93	30.5	98	34	56	22.5	132	60

General Water Contents, February 28, 1934

Buffalo Ranch	Snow inches	3 . .	water inches	.84
Tower Falls	" "	4 . .	" "	.91
Gallatin Station. . . .	" "	20 . .	" "	3.34
Bechler River Station .	" "	43 . .	" "	12.81
Snake River Station . .	" "	41 . .	" "	10.00
Lake Station.	" "	20 . .	" "	4.38

The comparative snow depth figures closely indicate the deficiency in precipitation over the past few years. The water content of the snow is also considered light. If the present deficiency in precipitation can be considered indicative of a dry summer, 1934 will undoubtedly be one, especially so if the accumulated deficiency is carried into the next three months.

022 - Approaches to the Park

The Livingston-Gardiner-Mammoth road has been open and in excellent condition throughout the month. The Cody-East Entrance road is open from Cody to Pahaska. The Jackson Hole roads are closed to motor traffic. The Bechler-Ashton road is open to within nine miles of the ranger station for motor traffic The West Yellowstone-Ashton road is open to within 18 miles from Ashton. The West Yellowstone-Ennis-Butte road is open by way of Ennis for motor traffic as far as West Yellowstone. The Gallatin-Bozeman road is open for motor traffic as far as the ranger station. These are unusual road conditions as no previous records are available showing a time when cars could drive between Ashton or beyond Ennis on that road. The West Gallatin road is usually closed beyond the Flying D Ranch, 8 miles beyond Gallatin Gateway. It is also reported that cars can drive to the 10,000 foot elevation on the new Red Lodge-Cooke road.

On March 3 the Union Pacific sent its first train into West Yellowstone from Ashton.

023 - In Nearby States

In nearby states the road and weather conditions were generally favorable throughout the month, although both Montana and Wyoming experienced considerably lower temperatures than the park. Several days of rain are reported in southern Idaho.

100 - Administration

110 - Status of Work

All work was kept current. Miss Constance Whitney was transferred from the position of senior stenographer at large to clerk in this park, effective February 16, vice Margaret F. Sabin.

120 - Park Inspections by:

121 - Acting Superintendent

During February I was again kept rather busy on CW matters, in addition to the regular park duties. There were so many problems to work out due to the curtailing of the CW program that I was kept at the office a large share of the time.

On February 12 I drove to Livingston in connection with CW matters. Late in the afternoon I went to Whitehall with a delegation of other Rotarians, where a new club was formed. Over 250 Rotarians from all parts of the state of Montana were present, there being more at this meeting than at the two last state conventions.

On February 16 Special Disbursing Agent Francis [illegible]. Watson and I drove to Helena, Montana, at the telegraphic request of the State CW Administrator to attend a conference the next day (Saturday, February 17) of CW officials. Master Mechanic R.H.Robinson accompanied us, to learn all he could about garage plans, in connection with our new garage to be built at Mammoth. We returned to the park on Sunday, February 18.

On February 21 I again drove to Livingston and met Associate Architect Edward A. Nickel, who came by train from the San Francisco Field Headquarters. Mr. Nickel remained at Mammoth until the 25th, conferring with park officials concerning the new garage and apartment house. On the 25th I took him to Livingston, where we conferred with local contractors. Mr. Nickel took the train for Denver on the morning of the 26th. I returned to Mammoth the afternoon of the 26th, after having attended the noon luncheon of the Livingston Rotary Club.

123 - Office of National Parks Officers

Edward A. Nickel, Associate Architect in the San Francisco Office arrived February 21 and left on the 25th.

125 - Other Governmental Officers

E.A. Anderson, Bureau of Public Roads engineer from Denver, who is stationed here during the summer, arrived in the park February 2, and returned to Denver on the 6th.

140- Labor Situation

The unemployment situation is increasing each week, due to the fact that it is necessary to lay off 10% of the CW employees every week.

150 - Equipment and Supplies

Three carloads of lump coal and one carload each of gasoline, fuel oil and cast iron pipe were received during February. There were also shipments of plumbing supplies, linoleum, paste, hydrants valves, flue lining and oak flooring.

170 - Plans, Maps and Surveys

Items of work under this activity were all in connection with Civil and Public Works programs, consisting of field engineering on active projects and plans and estimates for work to be opened up later. The clerical and statistical force on Civil Works working out of engineering was reduced by two men at the end of the month.

200 - Maintenance, Improvements and New Construction

220 - Improvements

Carpenter Shop. The only other work, beside general maintenance, in this department consisted of tearing up the old floors on the first floor of building 2B.

Electrical Department. The barn at the Gardiner ranger station was wired for electric lights and several changes were made in electric circuits on account of project FP 349 Elimination of Fire Hazards. Numerous odd jobs were also completed.

Shops. Twelve trucks, one passenger car, one motor patrol, one concrete mixer and one Bureau of Public Roads truck were overhauled. The steam boiler from the old condemned steam hoist was moved into the wash rack to take the place of the one used for the past four years, which was beyond repair. The usual maintenance of equipment in operation, including CWA equipment, has gone forward.

Paint Shop. Work in this department consisted entirely of maintenance work and replacing bulls-eyes on signs on the Gardiner Road.

Plumbing Department. Beside the usual maintenance work during the month, the master plumber supervised CW projects No. 1 (fire main) and No. 8 (museum basement), and FP projects 349.2 and 349.5

230 - New Construction

Nine Civil Works projects were active during the month, one being completed about the middle of the month and the remaining eight continued for the remainder of the period. FP project No. 349 was carried on throughout the month.

Contract Construction. The contractor on the Golden Gate section re-established his camp early in the month, operating two trucks and the breaker unit of his crushing plant and later installing a second crusher unit adjacent to the rock point being removed.

300 - Activities of Other Agencies in the Park

310 - Public Service Contractors

The general store at Mammoth was open during the entire month.

500 - Interpersonal Relationships in the Community

520 - Personnel

Interior Duty. The duty other ward, facility department, is vital to the department conducted of service by the All Divine on the first floor of building #2.

Carrying Out Orders. The head of the [illegible] manager directs the plant. Tasks and matters [illegible] civic duty/ts the accounts of projects on the allowance of the Department. Charges and jobs have [illegible].

Goods. Daily basis, the plumber may, the boiler control, the [illegible] the [illegible] facility tasks [illegible] will be found the [illegible] to take the place of the one who [illegible] years, with the [illegible] repair. The [illegible] of equipment is operating, [illegible].

Plant Shop. [illegible] is his personnel [illegible] conference with the [illegible] on the [illegible] head.

Training Department. [illegible] of [illegible] [illegible] the [illegible], the [illegible] [illegible] [illegible]. I [illegible] [illegible]. I [illegible].

540 - Time Scheduling

The [illegible] projects [illegible] the work, may be [illegible] about the [illegible] of the [illegible] and the [illegible] with [illegible] for the [illegible] of the [illegible]. If [illegible], [illegible] [illegible] to [illegible].

Cabinet Construction. The [illegible] in the [illegible] [illegible] [illegible] and the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible].

560 - Activities of Other Persons in the Area

562 - Public Service Enterprises

The [illegible] [illegible] the [illegible] [illegible].

400 - Flora, Fauna and Natural Phenomena

410 - Rangers, Naturalist and Guide Service

Chief Ranger Baggley was on annual leave from January 13 to and including February 5. During February the following inspection trips were made.

February 10 to Slough Creek and return
February 14 to the Buffalo Ranch
February 17 to Slough Creek ranch and return
February 20 to Soda Butte and return
February 22 to Bozeman and the Gallatin ranger station.
February 23 over the Gallatin winter elk range
February 24 returned to park headquarters via Bozeman, where he spent one-half day with Drs. Welch and Marsh, discussing game matters and at the Montana State Seed Laboratory, where he discussed the purchase of grass seed with laboratory personnel.

Assistant Chief Ranger Miller went on annual leave February 22 and will return March 18.

Assistant Chief Rangers LaNoue and Johnston are still on their special assignments at Scottsbluff National Monument and at the Washington office respectively.

Park Ranger George A. Walker was transferred from Hellroaring ranger station to Mammoth to assist with work here. Park Ranger Frank Childs was on special work at park headquarters for the last four days of February.

Ranger Harry Trieschman is still assigned to CWA projects supervision.

Ranger John Bauman was injured on February 10 and was taken to the hospital at Livingston on February 11 where he received treatment for 12 days. He suffered a dislocated hip joint which gave him considerable pain and which has made it impossible for him to do heavy work. He has been assigned to light duty repairing saddle and packing equipment at headquarters.

All of the regular monthly patrols throughout the park were made, as well as several special wild life observation trips in the winter game range.

420 - Museum Service

Lectures and slides and movies were given each week for the CWA men by the park naturalist and assistant park naturalist. Mrs. Herma A. Baggley, former junior park naturalist also gave several lectures at Moscow and Lewiston, Idaho and Spokane Washington.

Eleven outlines for movie reels were prepared; plans for use of basement and additional room completed; three museum cases were planned and two ordered; three museum exhibits were planned and work begun on two of them. A humidor to care for 36 movie films was planned and work on its construction begun.

460 - Birds

District Ranger Albert E. Elliott reports 24 trumpeter swan on the Lake outlet and 42 near the Mud Volcano on February 24. Twelve trumpeter swan were reported by District Ranger Frank Childs on Shoshone Lake. Elliott reports that the swan in the Lake district move back and forth from the Mud Volcano to the Lake outlet and West Thumb, but that they spend a greater part of their time near Mud Volcano and Lake Outlet. This number of swan is by far the largest yet to be reported in the park.

Geese, ducks and other water birds are seen in large numbers throughout the park wherever open water is available.

Bluebirds were observed on February 10 near Gardiner, Montana.

470 - Animals

A generally mild winter and light snow conditions have been very favorable for the large numbers of game animals wintering in the park.

Elk. The elk are enjoying the especially favorable forage conditions and are widely scattered over most of their winter range. Park rangers who have been making special observations on the winter forage conditions between Soda Butte and park headquarters advise that a larger range area is available during the month of February than during January. So much free grazing territory is available that an accurate count of elk is extremely difficult.

Both at the Gallatin and on the Yellowstone side the winter elk tick is very much in evidence.

On February 28 one bull, one calf and seven cow elk were trucked from the Game Preservation Ranch to Dillon, Montana, to stock the ranch of Mr. Frank Hazelbaker, former Lieut. Governor of Montana. On February 16 one cow and one bull elk were shipped to Mr. A.J. Kimmons of Bristol, Tennessee. These comprise the total elk shipments for this year.

The feeding operations at Upper Slough Creek were suspended on February 22 due to the fact that only a few elk were there and a considerable amount of hay and some expense could be saved by combining the Upper and Lower Slough Creek feeding operations. A large amount of hay is on hand at the lower ranch and only a small amount at the

upper ranch. At present one man is feeding at the lower ranch, where about 330 head of elk are feed daily.

Deer. Nearly all of the deer have shed their antlers and in some cases new growth has started. Conditions have been favorable for the deer and they are in generally good condition, although several have been observed with swollen throats, which is indicative of the deer bot fly which matures about this time of year.

During the light of the moon in February night patrols were maintained between Gardiner and the north park line to prevent night killing of deer. At the close of the month no violations had occurred.

Sheep. In the Tower Falls district one diseased lamb was reported but he has since disappeared and has not been seen again. He will be collected and examined in the laboratory if observed again.

Moose. Park rangers on patrol through the Lake-Thorofare section of the park report that moose have been forced by the heavy crust to leave the lower land where they normally winter and seek open hillsides.

Buffalo. It was anticipated that an additional 55 head of buffalo would be slaughtered in February to make up the total of 220 head which we had hoped to dispose of. However, the mild weather conditions sent practically all of the buffalo away from the feed ground and seek the high open range. Because of this, all plans for additional slaughter were abandoned.

A more careful count of the buffalo on Pelican Creek disclosed 197, of which 42 are calves. Buffalo are wintering as far south as Steamboat Point.

A special report is being submitted covering the disposal of the surplus buffalo, both live shipments and slaughtered animals.

Ranch Activities. No change occurred in ranch personnel during the month, except at Slough Creek. Ranger Bauman was replaced for 10 days by a laborer who fed the elk at the Lower place. During the month an average of 250 to 300 head were fed daily at the two ranches. From one to 200 head of buffalo were fed at the Buffalo Ranch. Hay would be put out for the buffalo during the day and a few would come in during the night and occasionally a day's feeding was left for an entire day before the buffalo came to it.

The mild winter which has taken all of the frost out of the ground has made it possible to do some burning of Russian thistle at the Game Ranch and to start repair of the irrigation flume at the Gardiner Ranch. During March grass seed will be purchased and used at the Game Ranch.

One of the ranch work horses died on February 27.

480 - Natural Phenomena

Mammoth

Angel Terrace though still beautiful in color, the flow of water is still decreasing from the spring that has been so active for over a year and a half. The flow is increasing from a number of small outlets along the slope to the north, filling six large basins below. The active springs to the south are flowing the same as last month.

Blue Springs shows no noticeable change from last month.

Cleopatra Spring has increased slightly during the past month. The little spring 50 feet to the south is inactive.

Cupids Cave has increased about one-quarter of last month's flow.

Hymen Spring - same as in January.

Jupiter Spring has not sufficient water to flow over the slope of the terraces.

Main Terrace shows a slight seepage of water.

Mound Spring has increased in its flow and the springs below near the Moore residence are more active than at any time this winter.

Opal Spring has decreased slightly during the latter part of the month.

Pulpit Terrace. The water overflowing from Blue Springs is flowing down the south portion of this formation.

Palette Spring has increased a third more in flow over last month. The waters have entirely covered the old trail on the west side of the terrace.

Many steam vents are in evidence scattered over the old formations, especially along very old cracks in the travertine.

An old opening in the formation below Mammoth is steaming continuously, about 100 yards down the slope from the Beatty garage.

Old Faithful District

Upper Geyser Basin

The Beehive Geyser is much hotter at present but has not erupted to date. Several minor changes have been noted and an increased flow of water from the majority of geysers and hot springs as compared to early last fall.

Giant Geyser erupted sometime during the period of February 19 and 21.

Black Sand Basin

Emerald Pool, Handkerchief Pool and Rainbow Pool are now back to last summer's normal.

Cliff Geyser is now playing to greater height than Ranger Childs, who makes the observations at the Upper Geyser Basin, has ever observed it. However, it does not play as high as stated on the sign.

Green Spring. During the past summer this spring was dull brown in color. Very little water ever flowed from it. At present it is a beautiful green in color and the flow has increased 70%. Last month when it was observed from the top of the Madison Plateau it appeared only a very slight shade lighter in color than Emerald Pool.

Biscuit Basin

On January 27 a small geyser was observed in eruption. This geyser is located about 70 feet west of Artemisia Geyser. This geyser played to a height of 65 feet and was a perfect miniature of Old Faithful Geyser.

The new geyser - Black Boulder Geyser - has not shown any signs of new activity. The pool is almost clear now, but hot water flow has not diminished.

Shoshone Geyser Basin

Activity is normal.

Lower Geyser Basin

Activity is normal.

Midway Geyser Basin.

Excelsior Geyser: The water flow from this geyser has been constantly increasing all winter and at present is flowing about 25 (second)-feet of water, estimated.

500 -Use of Park Facilities by the Public

510 - Increase or Decrease in Travel.

Travel for the month consisted of 180 visitors traveling in 79 cars. Last year during the same month 272 people in 85 cars entered the park.

530 - Special Visitors

Mr. Ed Commers, Secretary of the Dude Ranchers Association and Mr. H.G. Clark of the Standard Oil Company visited Mammoth Hot Springs in the interest of publicity matters.

Dr. Butler, Chief of the Montana Livestock Sanitary Board and Dr. Hadleigh Marsh of the Bozeman Experiment Station called at the park on February 28 to consult with Chief Ranger Baggley regarding game conditions. Dr. Marsh and Dr. Butler expect to return soon to assist in the collection of blood specimens from the elk at Slough Creek.

600 - Protection

620 - Fire Protection

During February the fire equipment was all inventoried and additional equipment necessary to bring the caches up to full strength is being ordered. Due to the rush of current work the fire atlas is just being started. Since nearly all of this work has been handled by Mr. Johnston it was necessary to detail someone else to it during his absence.

640 - Destruction of Predatory Animals

Six coyotes were killed during the month, bringing the total for the year to 170 as compared with 140 last year.

On February 11 the coyote hide sale was held at which time the hides were sold to the highest sealed bidder. Beckman Brothers Fur Company of Great Falls was the successful bidder on government coyote hides at a price of $9.10 each. This was quite an advance over last year's price of $4.51 each. D.J. Sharp and Don Strong of Livingston, and Jacob Baer of Bozeman were also in attendance at the sale and submitted bids.

900 - Miscellaneous

CWA Program.

The Civil Works program has kept everyone at Mammoth rather busy all during the month. Due to the extreme good weather no time was lost and very good progress was made on the work. We were very glad when the CW program was continued from February 15 to May 1, and, although the quota of men is gradually being lowered each week, most of our projects will either be completed or left so we will not lose what has been done.

Postoffice. There was a considerable increase in the business of the postoffice over the same period last year.

Church Services. Lutheran Services were held at the chapel on the 26th.

Hospital and Medical. Dr. Pudaeff, resident physician, had 103 office calls and made 17 house calls during February.

The Federal Employees' Union had its regular monthly meeting on February 5.

Sincerely yours

Guy D. Edwards,
Acting Superintendent

CW

MONTANA C W A PROJECT # 24 1. Working on section of Cardiner-Jardine road.

2. Same as above section at completion of regrading.

YOMING C W A PROJECT # 3 Ricks of quarried stone to be used as curb rock on Mammoth Terraces.

ONTANA C W A PROJECT # 17 Posts for marking north park boundary, drying out preparatory to preservative treatment in creosote plant showing in foreground.

MONTANA C W A PROJECT # 15 1. Closeup view of newly constructed barn at lower Blacktail utility area.

2. General view of barn and corral fence.

10-157
(July, 1929)

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

TRAVEL REPORT

Yellowstone National Park for the Month of February, 1934

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year	
					Number	Percent
PRIVATE TRANSPORTATION:						
Cars first entry, ...	79	2450	85	1960	490	25.
Cars reentry, ...		82		89	-7	-8.5
Motorcycles, ...		3			3	300
Total motor vehicles, ...	79	2535	85	2049	486	23.7
Persons entering via motor vehicles, ...	180	8021	272	6814	1207	18
Persons entering via other private transportation, ...						
Total persons entering via private transportation, . . .	180	8021	272	6814	1207	18
OTHER TRANSPORTATION:						
Persons entering via stages, .						
Persons entering via trains, .						
Persons entering otherwise, . .						
Total other transportation, .						
GRAND TOTAL ALL VISITORS, . . .	180	8021	272	6814	1207	18

	This Year	Last Year	Increase	
			Number	Percent
Automobiles in public camps during month, ...				
Campers in public camps during month, ...			NONE	

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

TRAVEL REPORT

National Park for the Month of

	This Month	This Year To Date	Last Year To Date	This Month	This Year To Date	Last Year To Date	Increase or Decrease Number	Increase or Decrease Percent
PRIVATE CONVEYANCES								
Cars first entry								
Cars reentry								
Motorcycles								
Total motor vehicles								
Persons entering via motor vehicles								
Persons entering via other private transportation								
Total persons entering via private transportation								
OTHER TRANSPORTATION:								
Persons entering via stages								
Persons entering via trains								
Persons entering otherwise								
Total other transportation								
GRAND TOTAL ALL VISITORS								

	This Year	Last Year	Increase or Decrease Number	Increase or Decrease Percent
Automobiles in public camps during month				
Persons in public camps during month				

0--158 . . PARTMENT OF THE INTERIC

NATIONAL PARK SERVICE

STATUS OF AUTHORIZED PROJECTS

Yellowstone National Park for the Month of February, 1934

Description of Projects	Percent Constructed To Date	Percent Constructed This Month	Percent Constructed Last Month	Probable Date of Completion

NO CHANGE IN STATUS OF AUTHORIZED PROJECTS DURING FEBRUARY

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

STATUS OF AUTHORIZED PROJECTS

National Park for the Month of

Description of Projects	Percent Constructed To Date	Percent Constructed This Month	Percent Constructed Last Month	Probable Date of Completion

10-159
(May, 1931)

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

STATUS OF PERSONNEL

Yellowstone National Park for the Month of February, 1934

	This Month		This Month Last Year	
	Appointed	Non-Appointed	Appointed	Non-Appointed
Number of employees beginning of month	74	*38	72	12
Number of additions	1	8	0	5
Total	75	**44	72	17
Number of separations	0	4	0	5
Number of employees close of month	75	***40	72	12
Number of promotions during month	0			
Aggregate amount of annual leave taken furlough	62		412½	
Aggregate amount of sick leave taken	20		25	
Aggregate amount of leave without pay	28			

*11 PW employees
*11 " "
*11 " "

10-160

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

REPORT OF PARK REVENUES

Yellowstone National Park for the Month of Februa y, 1934

	This Year	Last Year
Park revenue on hand beginning of month,	0	0
Received,	957.10	367.47
Total,	957.10	367.47
Remitted,	957.10	363.12
On hand close of month,	0	4.35

Park revenues received this year to date,	128,737.92
Park revenues received last year to date,	131,975.44
~~Increase~~, Decrease	3,237.52
Per cent of ~~increase~~ decrease	2.4531

10-160

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

REPORT OF PARK REVENUES

Yellowstone National Park for the Month of [illegible], 1934

	This Year	Last Year
ark revenue on hand beginning of month	[illegible]	0
eceived	[illegible]	[illegible]
Total	[illegible]	[illegible]
emitted	[illegible]	[illegible]
n hand close of month	[illegible]	[illegible]
ark revenues received this year to date		[illegible]
ark revenues received last year to date		[illegible]
Increase		[illegible]
Per cent of increase		[illegible]

10-163

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

*ELECTRICITY GENERATED, SOLD, USED, ETC.

Yellowstone National Park for the Month of February, 1934

	This Month	This Travel Year To Date	This Month Last Year	Last Travel Year To Date	Increase for Travel Year Number	Percent
Current generated,	62,577	573,077	56,776	465,630	107,447	19
Sold to park operators,	302	35,066	597	35,332	-266	-.07
Sold to others,						
Furnished to other Governmental agencies,						
Used by National Park Service, lost in transit, etc.,	62,275	538,011	56,179	430,298	107,713	20
Total current generated,	62,577	573,077	56,776	465,630	107,447	19

Amount receivable from the sale of electricity, $ 15.10

* Indicated by K. W. H.

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

10-162

UNITED STATES

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

REPORT OF TELEPHONE AND TELEGRAPH BUSINESS

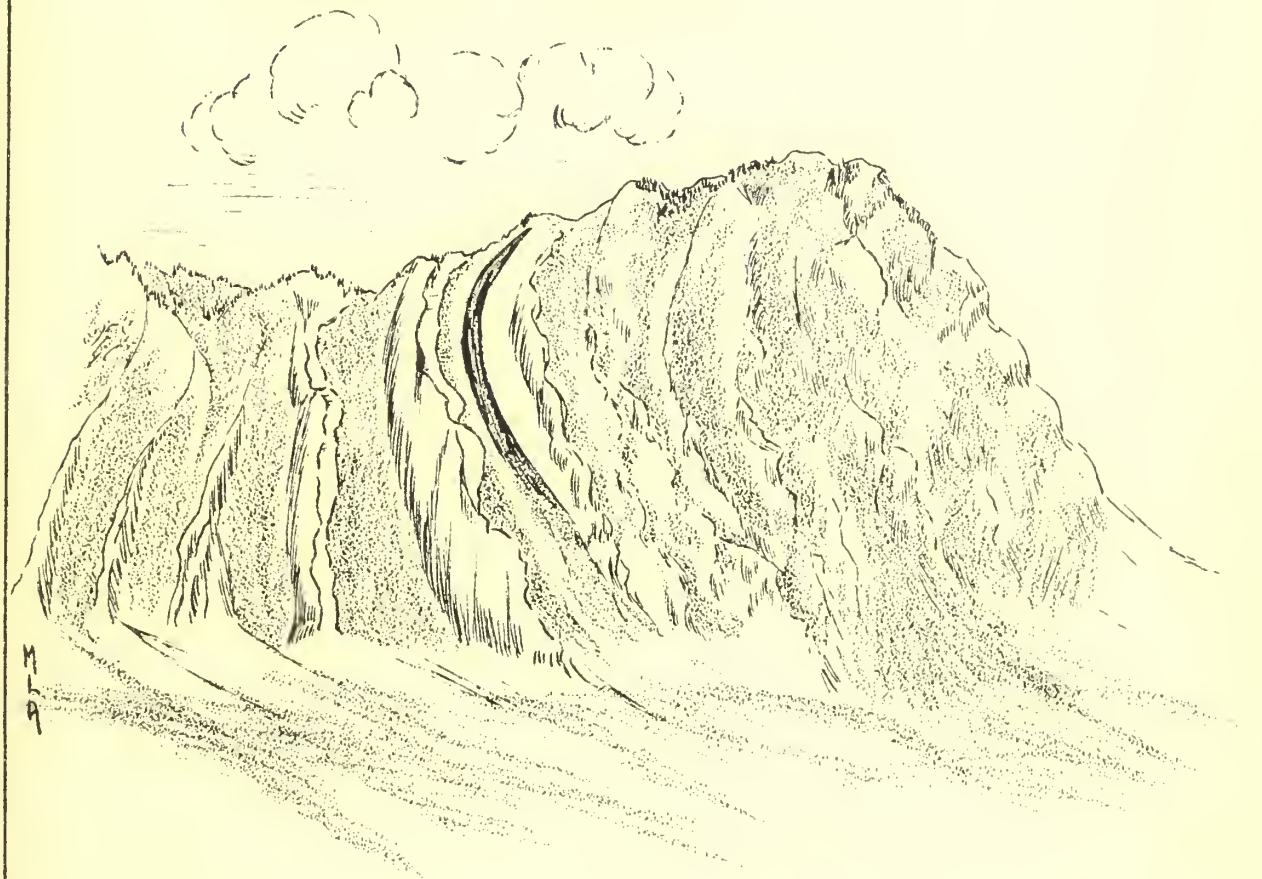
Yellowstone National Park for the Month of February, 1934

	This Month	This Month Last Year	Increase	Decrease
LOCAL BUSINESS				
Miles of circuit maintained	545	542	3	.05
No. of telephones connected	205	197	8	4
No. of measured service calls				
No. of other local calls.				
Total No. of local calls	4222	4443	-221	5
Peak load in calls per day.	232	246	- 14	5
Receipts from measured service calls.				
Receipts from coin boxes.				
Receipts from telephone rental.				
TOTAL RECEIPTS				
LONG DISTANCE BUSINESS				
No. Outbound calls.	111	53	58	58
No. Inbound calls	79	48	31	39
TOTAL LONG DISTANCE CALLS				
Peak load in calls per day.	in 6 out 12	9		
Receipts from Long Distance business				
TELEGRAPH BUSINESS				
Messages via Western Union.				
Messages via.				
TOTAL MESSAGES				
Receipts from telegraph business				
No. of money transfer messages.				
No. of money transfer receipts.				
TOTAL RECEIPTS TELEPHONE & TELEGRAPH DEPT.				

VOL. XI JANUARY-FEBRUARY 1934 NOS. 1-2

YELLOWSTONE NATIONAL PARK

NATURE NOTES



CINNABAR MOUNTAIN
DEVILS SLIDE

United States
Department of the Interior
Office of National Parks, Buildings and Reservations
Yellowstone National Park
Yellowstone Park, Wyoming

YELLOWSTONE NATURE NOTES

Vol. XI | January-February, 1934 | Nos. 1 & 2

This is one of a series of bulletins issued regularly for the information of those interested in the natural history and scientific features of Yellowstone National Park and the unmatched educational opportunities offered by this region. PUBLICATIONS USING THESE NOTES PLEASE GIVE CREDIT TO "YELLOWSTONE NATURE NOTES" AND AUTHOR.

Roger W. Toll, Superintendent | Marguerite L. Arnold, Illustrator | C. Max Bauer, Park Naturalist

Note: This number of Nature Notes is devoted largely to geology. The past summer a number of research workers were engaged in geologic investigations in Yellowstone Park or in adjacent areas. The International Field School of Geology located at Red Lodge, Montana has been carrying on work in the Yellowstone-Beartooth region for several years. This work is sponsored by Professors W. T. Thom, Jr., of Princeton, R. T. Chamberlin of Chicago, W. H. Bucher of Cincinnati and several other leading professors in geology and physiography. The work of the research students from this school is published in various scientific bulletins and journals. Advance information in this edition of Nature Notes on one of these projects is given with the permission of Dr. C. W. Wilson of Vanderbilt University, a leader of one of the research parties. (Editor)

THE GEOLOGY OF THE THRUST FAULT NEAR GARDINER, MONTANA

By Park Naturalist C. Max Bauer

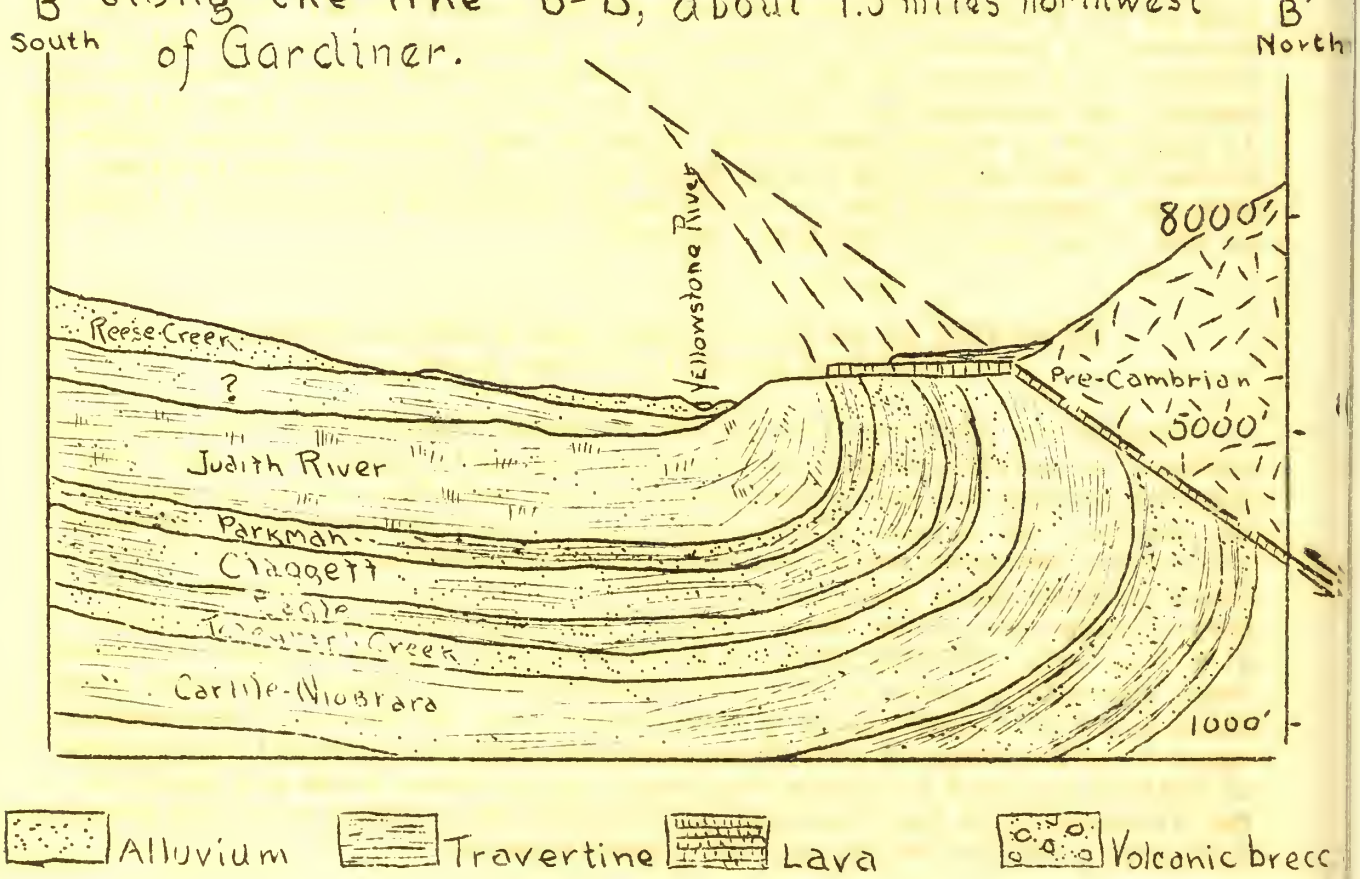
During the summer of 1933 Dr. C. W. Wilson, assisted by three graduate students in geology, mapped an area along the north side of the park from Cinnabar Mountain southeastward into the park including the major part of Mt. Everts. The purpose of this work was to study the structure and mountain making movements which contributed to the building of the Beartooth Mountain Range which extends along the north side of the park area. The work already done on the north side of the Beartooth Mountains, together with this work indicates that the Beartooth Range, which includes the Snowy Range immediately north of the park, consists of an enormous tectonic wedge which has been forced upward by compression from the blocks of the earth's crust on either side of it. These movements have been brought about first by folding followed by thrust faulting. One of these faults was traced by Dr. Wilson's party for a distance of thirteen miles and many of its features have been explained which were not formerly known.

The Gardiner thrust fault was mapped in detail from the west side of Cinnabar Mountain, Montana where it appears from under a cover of tertiary volcanics, southeastward to a point three miles east of the crest of Mt. Everts in Yellowstone National Park at which locality the fault again extends under the volcanics. The fault plane dips to the northeast approximately 35° and is characterized by numerous subsidiary "slicings" also dipping to the northeast beneath the major thrust plane. This thrust fault has a displacement of about twelve thousand feet and it is believed by Dr. Wilson and his associates that it may be the prolongation of a similar fault along the southwestern side of Rattlesnake Mountain near Cody, Wyoming. It is a major structural feature of Yellowstone Park scarcely recognized in the past.

Some cross sections of the area mapped are given below:

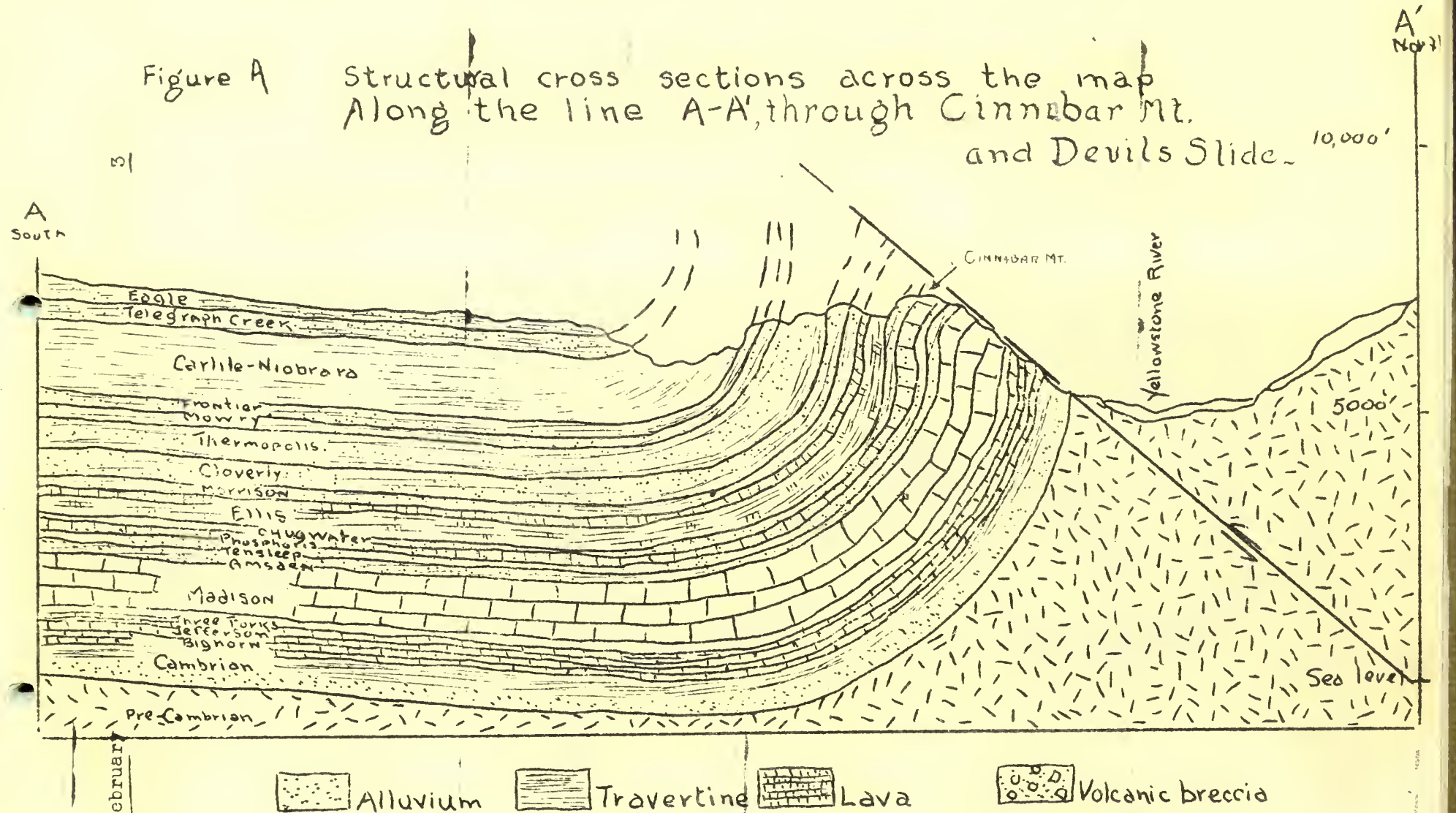
Figure B

Structural cross section across the map B along the line B-B', about 1.5 miles northwest of Gardiner.



Scale (Horizontal and Vertical): 1 inch equals 2500 feet.

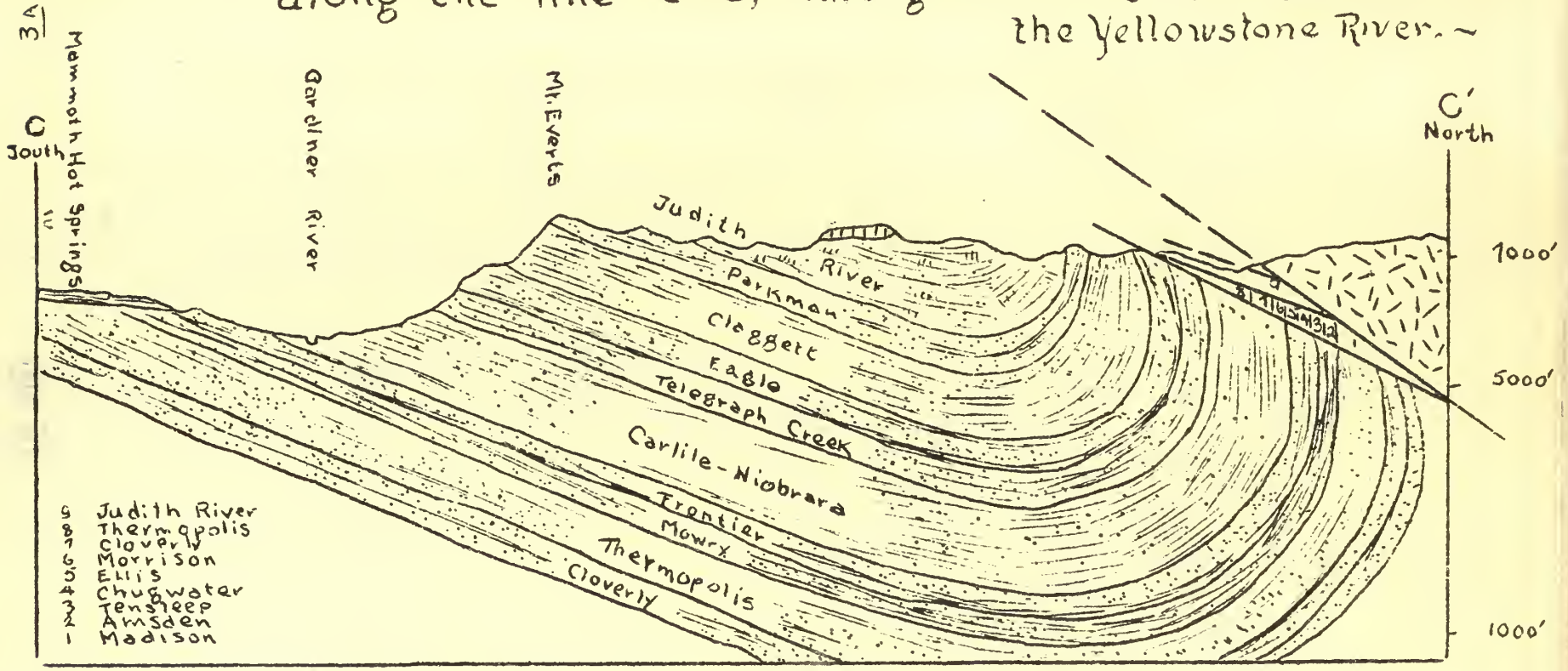
Figure A Structural cross sections across the map Along the line A-A', through Cinnabar Mt. and Devils Slide.



January-February

Scale (Horizontal and Vertical): 1 inch equals 2500 feet

Figure C Structural cross section across the map along the line C-C',- through Mt. Everts and eastward across the Yellowstone River.-



Scale (Horizontal and Vertical): 1inch equals 2500 feet

3A
January-February

It was found that at some time subsequent to the faulting basalt flows came up through this fissure. These basalt flows are in evidence north of Gardiner and at many points along the Yellowstone River farther to the southeast where they conceal the true structure of the underlying rocks. It was also found that, following the basalt flows, hot springs came out along the fault resulting in the deposits of travertine which are now being mined in the vicinity of Gardiner.

Another interesting structure is that between the mouth of the Gardiner River and the mouth of Reese Creek there is a downthrown block which contains some of the youngest marine deposits known in the park region and possibly some of the earliest volcanics associated with the withdrawal of the Cretaceous sea. This block contains Sepulcher Mountain and is bounded on the east and on the west by normal faults which probably took place about the same time that the great thrust faulting raised the mountains to the north.

Incidental to the mapping of the structure sections of the sedimentary rocks were measured in Cinnabar Mountain and also in Mt. Everts. A complete section was obtained at the Devils Slide (Cinnabar Mountain) from the Cambrian to the Upper Cretaceous. The modern names have been applied to the formations. We reproduce here the measured section on the west fact of Mt. Everts.

A more complete account of the Gardiner thrust fault will be published in the near future in the Journal of Geology.

THE STRATA IN MT. EVERTS

Note: There are several andesite sills toward the north end and a rhyolite flow on the south end of the mountain. The following table lists the sedimentary formations and gives their thicknesses.

TOP

(Upper Cretaceous, largely marine sediments)

Judith River formation	1204 feet
Parkman sandstone	390 "
Claggett shale	648 "
Eagle formation	408 "
Telegraph Creek formation	318 "
Carlile-Niobrara formation	1275 "
Frontier sandstone (at quarries)	300 "
Mowry shale	210 "
Thermopolis shale	685 "

BOTTOM

SOME EXCEPTIONAL WEATHER FEATURES OF 1933.

By W. T. Lathrop, Meteorologist

Breaking of weather records at Mammoth in 1933 began in January, with the unparalled observation of snow every day of the month. On thirteen days the snowfall amounted to only a trace; i.e., less than 0.1 inch; but some snow fell on each of the 31 days. Another record to fall in January was the average wind velocity. The wind blew at an average rate of 11.6 miles per hour which was higher than any previous January average.

February's remarkable cold set a new record for that month, with a mean or average monthly temperature of 10.2 degrees above zero. The extreme low mark registered, -40 on the 9th, was also a new record for Mammoth. At this time, at Riverside Ranger Station near West Yellowstone an observed minimum of -66 established a new thermal extreme for the entire United States. At the regular Weather Bureau station at Mammoth, from January 10 to February 24, inclusive, a period of six and one-half weeks, the temperature was continuously below the freezing point. Following January's exceptional condition as to snowiness, the fact that a trace or more of snow fell on 23 of February's 28 days was notable.

No records were observed to fall in March, April, May, or June. While neither June nor July was the warmest month of its name on record, the two together, with an average temperature for the 61 days of 62.8 degrees, made the warmest succession of June and July on record here. August permitted old records to stand. In September one new record was set up. A maximum wind velocity of 40 miles per hour was recorded on the 22nd, the highest September wind velocity in our records. Another temperature record was supplanted in October. when an average of 46.2 degrees was placed in the books, the highest October mean for all years on record. While November broke no records it produced an interesting barometric record. The average pressure for the month, at Mammoth, was 24.04 inches; this tied the highest of record for any month, November or other.

December's wind movement, with an average velocity of 11.8 miles per hour, was not only the highest for December, but the highest monthly average velocity ever recorded at the local station for any month. December was exceptional in temperature also. The monthly mean, 28.6 degrees, was slightly higher than that of any preceding December. A third December record was equalled with precipitation amounting to .01 inch or more on as many as 22 days.

P.S. January, 1934, following the lead of December, overthrows the mean temperature record for the month, with 26.2 degrees, exceeding the earlier January highest mean, that of 1896, by 0.6 degree, and making a fairly close approach to the normal for the month of March, which is 26.5.

FOSSILS IN THE TRAVERTINE AT MAMMOTH

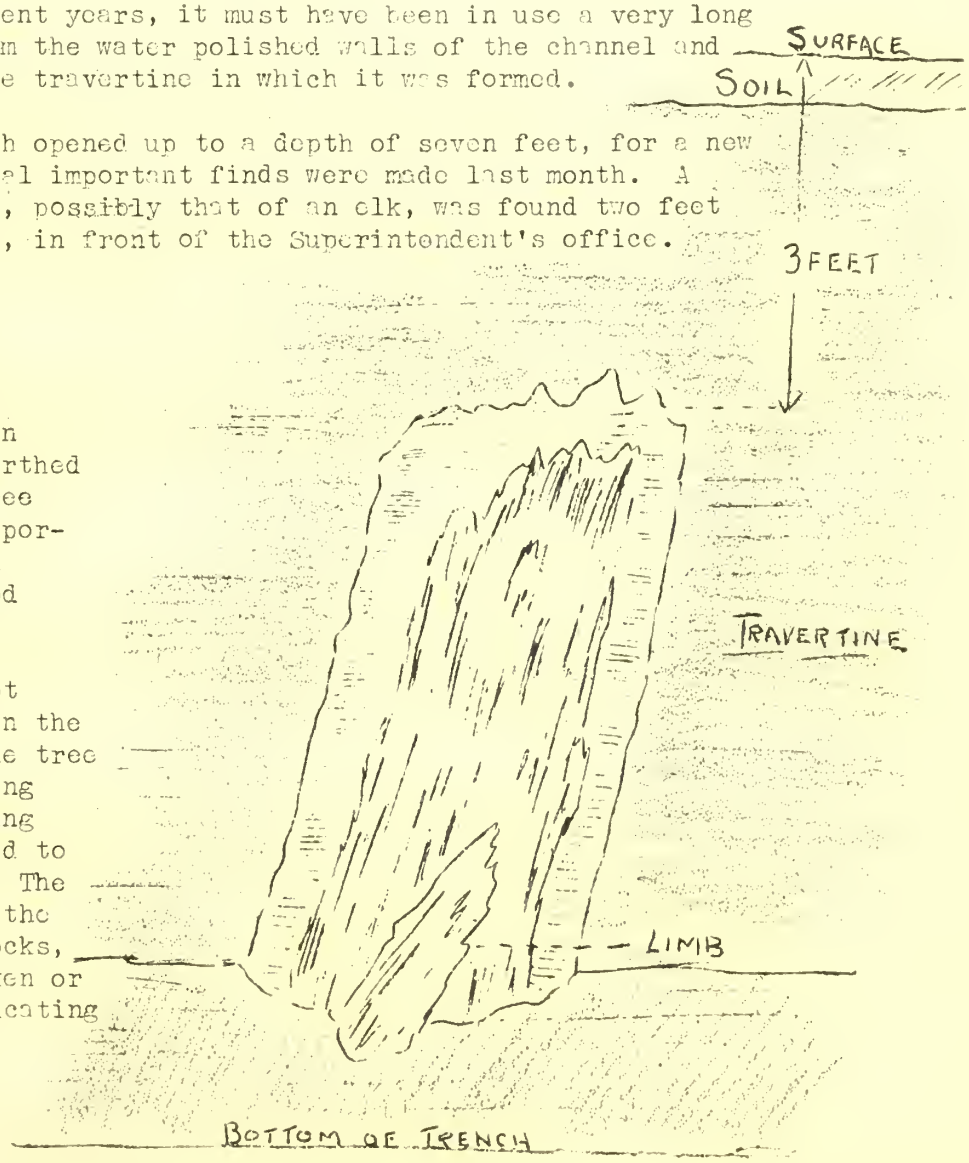
By George C. Crowe, Assistant Naturalist

Many of our readers, no doubt, will be interested in knowing that the community of Mammoth is built on old hot springs deposits, laid down many hundreds of years ago. Occasional excavations in these old formations expose beautiful and varied forms of travertine.

C.W.A. workmen, digging in the basement of the Museum, broke into an old subterranean channel about 10 by 14 inches which extended the width of the building. Though no water had flowed through it in recent years, it must have been in use a very long time, judging from the water polished walls of the channel and the density of the travertine in which it was formed.

In the trench opened up to a depth of seven feet, for a new water main, several important finds were made last month. A jawbone and teeth, possibly that of an elk, was found two feet below the surface, in front of the Superintendent's office. About one hundred feet east of the Weather Bureau building the top of an old tree, eighteen inches in diameter was unearthed at a depth of three feet. The outer portions had decayed but the heart wood was sound.

An eight foot bar was lowered in the cavity between the tree and the surrounding travertine, showing that it was buried to a greater depth. The upper portion of the imprint in the rocks, is that of a broken or decayed top, indicating



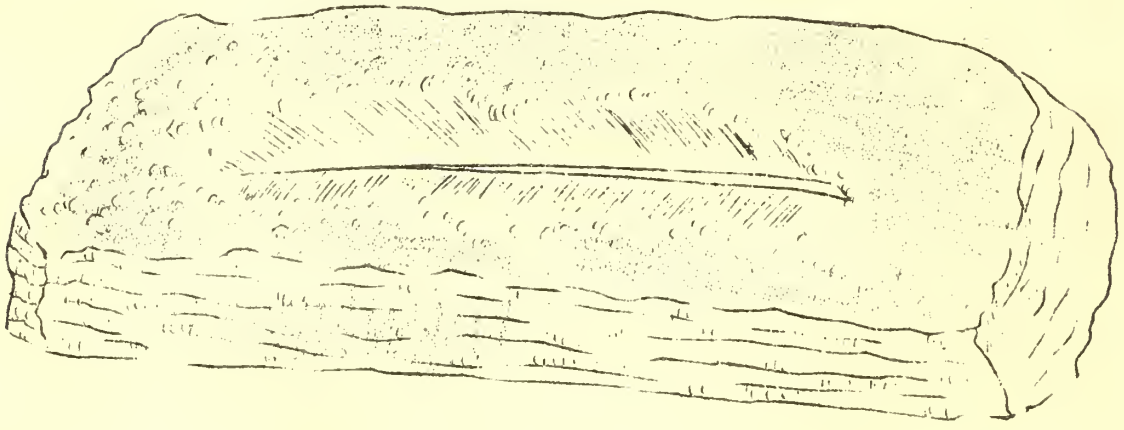
FROM A SKETCH BY G.C. CROWE

that the tree must have been dead before the deposits covered it. A limb about eight inches in diameter, originally extended over ten feet into the formation, as the cavity is still in evidence. A short stub of this limb was still attached to the trunk, the balance had rolled away.

The wood, which has not been identified, may be pine or cedar.

A twenty-eight inch limber pine is growing on the surface one hundred feet from this fossil tree.

It is remarkable that this tree buried many hundreds of years is not petrified.



FROM A SKETCH BY G.C.CROVVE

THE FEATHER IS PARTIALLY COVERED IN THE GRANULAR TYPE OF DEPOSIT COMMON TO THE COOLER AREAS OF MAMMOTH HOT SPRINGS TERRACES.

The above sketch is that of a feather found two feet deep in the travertine in front of Judge Meldrum's residence. It looks quite like a grey wing-feather of the Nutcracker (Nucifraga columbiana).

LEAVES FROM OUR DIARIES

Jan. 28--A herd of about seventy antelope seeing several persons on the flat terraces of the old rifle range east of the lower Gardiner River came down from the slopes of Mt. Everts to investigate. The band made a wide circle at high speed and presented a great sight to the fortunate spectators. A cloud of dust hovered above them as they sped along, and returned to their starting point. --CMB.

Jan. 6--Forty-seven trumpeters were observed near Fishing Bridge, 23 of which were cygnets. On the following day the lake was frozen over and there was considerable activity noted among this group of birds, many of which migrated to other waters and to other parts of the lake.

Jan. 9--Four swan were seen at West Thumb. Signs along the lake shore and on the formation at Thumb indicate that these four birds, at least, had been in this vicinity for several days and have probably taken up their winter abode there. They were again seen on January 10 and 11.

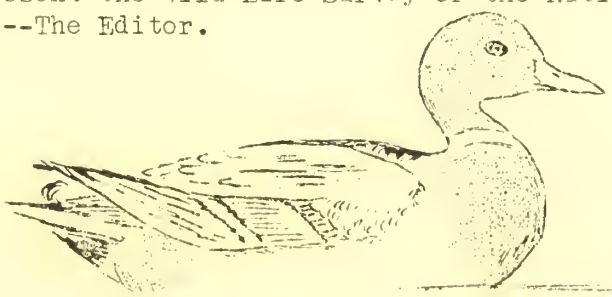
Jan. 11--Seventeen swan were seen on the ice near Dot Island.
Jan. 18--Two trumpeter swan were observed at the outlet of Fern Lake.
Jan. 19--Twenty-eight swan were observed on the Yellowstone River just below Mud Volcano and four others were seen near Fishing Bridge.
--AEE

Jan--Approximately 400 mallard ducks were on Soda Butte Creek between Soda Butte and its mouth the first part of the month. Fifty ducks remain.--JFA

Feb. 4--While walking through the lower Gardiner River Canyon, this morning, six water ouzels were observed between the two bridges. The birds were perched on the large boulders in mid-stream, alone, from fifty to two hundred yards apart. Their cheery songs could be heard above the roar of rushing waters.

On leaving the Canyon fresh beaver cuttings were noted in the birch and willow and the banks, but there was no indication of house or dam.--GCC

NOTE: If you know of any fairly complete sets of "Yellowstone Nature Notes" which are not in use, especially those published prior to 1932, will you please send them to the Secretary of the Yellowstone Library and Museum Association, or advise him where they may be obtained. At present the Wild Life Survey of the National Parks is in need of a set.--The Editor.



MRS. HERMA A. BAGGLEY RESIGNS
AS JUNIOR PARK NATURALIST

On December 31, Mrs. Herma A. Baggley resigned as Junior Park Naturalist of Yellowstone National Park. It is with deep regret that the officials and the naturalist department make this announcement. Mrs. Baggley, nee Miss Albertson, has served long and efficiently in the work of this department. She first came to the park as a "savage" and later served as a ranger-naturalist for several seasons. On May 1, 1931 she was appointed Junior Park Naturalist.

Herma has an A. B. and Masters degree in botany from the University of Idaho at which institution she was an instructor in botany for several years. She is an enthusiastic and careful naturalist and her services were greatly appreciated. She is much missed from her usual office. However, since she is the wife of Chief Ranger George F. Baggley we will continue to have her with us in the Mammoth community and her valued advice and interest in the naturalist work will continue.

SUMMARY OF WEATHER CONDITIONS

at

MAMMOTH HOT SPRINGS, YELLOWSTONE NATIONAL PARK

FEBRUARY, 1934

The very remarkable mildness of the winter in this locality continued in February. Minimum temperatures below zero were registered on three days, but with an average temperature of 28.8 degrees, it was the warmest February on record here. It was the fourth of the last five months to establish new high mean temperature records. This succession of record-breaking months was interrupted only by November. That month, however, introduced no inconsistency in the weather of the winter, since it averaged more than four degrees daily above normal, with an average temperature above the freezing point. February was 9.2 degrees above normal. Its mean temperature was 2.3 degrees above the normal of March. February last year was the coldest February on record. It had a mean temperature of 10.3 degrees, which was 9.5 degrees below the monthly normal. In the month just past, the maximum temperature was above the freezing point every day until (and including) the 19th, and five days during the rest of the month, or 24 in all. The lowest temperature recorded was -5, on the 25th.

The monthly total precipitation, 0.24 inch, was the lightest on record for February, falling just under the old mark of 0.25 inch recorded in 1903 and 1931. The departure from normal in precipitation was minus 1.09 inches, and 1934 already has a deficit of 2.07 inches since January 1st. The snowfall was very light, amounting altogether to 3.5 inches for the month. There have been a few lighter February snowfalls.

There were 5 clear days, 9 partly cloudy, and 14 cloudy. On 7 days .01 inch or more of precipitation occurred. The percentage of possible sunshine was 58. The average velocity of the wind through the month was 7.2 miles per hour. Snow on the ground at the end of the month was in scattered patches, mostly in sheltered or shaded places or the remains of drifts, and was recorded as a trace.

W. T. LATHROP, Meteorologist.

Form No. 1030—Met'l.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

MONTHLY METEOROLOGICAL SUMMARY.

Station, Yellowstone Park, Wyo. *; month,* February, *1934.*

Date.	Temperature (Degrees Fahrenheit.) Max.	Min.	Mean.	Precipitation. (In inches and hundredths.)	Character of day.	Per cent of Possible Sunshine
1	40	29	34	0	Pt. Cldy	69
2	47	33	40	0	Clear	92
3	44	29	36	0	Cloudy	61
4	49	25	37	0	Pt. Cldy	81
5	45	25	35	0	Cloudy	59
6	49	28	38	T.	Pt. Cldy	53
7	45	24	34	0	Clear	98
8	40	33	36	.06	Cloudy	6
9	33	25	29	.06	Cloudy	17
10	37	18	28	T.	Pt. Cldy	65
11	44	14	29	0	Pt. Cldy	100
12	41	31	36	0	Clear	100
13	46	25	36	0	Pt. Cldy	100
14	46	25	36	0	Pt. Cldy	81
15	47	13	32	0	Clear	100
16	45	22	34	0	Cloudy	30
17	39	24	32	0	Pt. Cldy	68
18	41	21	31	0	Clear	72
19	40	19	30	T.	Cloudy	47
20	31	11	21	.02	Cloudy	4
21	19	8	14	T.	Cloudy	32
22	34	10	22	.03	Cloudy	3
23	34	9	22	T.	Pt. Cldy	86
24	13	-2	6	T.	Cloudy	23
25	9	-5	2	.04	Cloudy	56
26	36	-1	18	T.	Cloudy	54
27	38	24	31	.02	Cloudy	20
28	36	20	28	.01	Cloudy	46
			Total.			
	1,224	786	1,005	0.24		68

ATMOSPHERIC PRESSURE.

(Reduced to sea level; inches and hundredths.)

Mean 30.229; highest 30.69, date 11
lowest 29.73, date 20

TEMPERATURE.

Highest 51, date 12; lowest -5, date 25
Greatest daily range 37, date 26
Least daily range 7, date 8

MEAN FOR THIS MONTH IN—

1871	82	93	15.6	04	23.8	15	26.4	26	27.			
1872	83	94	12.2	05	17.0	16	24.4	27	22.9			
1873	84	95	19.2	06	23.8	17	19.5	28	19.6			
1874	85	96	25.2	07	26.8	18	18.2	29	13.7			
1875	86	97	20.5	08	23.2	19	19.2	30	27.6			
1876	87	14.0	98	25.2	09	21.0	20	21.4	31	25.2		
1877	88	26.7	99	10.8	10	15.2	21	24.4	32	21.2		
1878	89	19.5	00	.....	11	14.6	22	12.9	33	10.2		
1879	90	17.6	01	18.0	12	22.4	23	16.4	34	28.8		
1880	91	14.2	02	26.7	13	10.3	24	26.2	35	.....		
1881	92	24.2	03	12.8	14	20.1	25	27.6	36	.....		

Normal for this month 19.6
Absolute maximum for this month for 47 years 55
Absolute minimum for this month for 48 years -40
Average daily excess (+) or deficiency (−) of this month as compared with the normal +9.2
Accumulated excess (+) or deficiency (−) since January 1 +528
Average daily excess (+) or deficiency (−) since January 1 +8.9

PRECIPITATION.

Total this month 0.24; snowfall 3.5
Greatest precipitation in 24 hours 0.12, date 8-9
Greatest 24-hour snowfall 1.4, date 8-9
Snow on the ground at end of month T.

TOTAL PRECIPITATION THIS MONTH IN—

1871	82	93	0.79	04	1.50	15	0.39	26	1.05			
1872	83	94	1.12	05	0.60	16	0.59	27	0.86			
1873	84	95	0.34	06	1.84	17	1.83	28	0.37			
1874	85	96	2.07	07	0.58	18	2.03	29	0.77			
1875	86	97	0.80	08	1.22	19	1.64	30	0.69			
1876	87	.....	98	1.21	09	0.65	20	1.02	31	0.25		
1877	88	.....	99	3.40	10	1.61	21	0.62	32	0.70		
1878	89	1.93	00	1.65	11	1.10	22	1.84	33	0.76		
1879	90	.....	01	0.78	12	0.48	23	0.59	34	0.24		
1880	91	2.79	02	0.61	13	0.52	24	0.77	35	.....		
1881	92	2.10	03	0.25	14	0.78	25	1.29	36	.....		

Normal for this month 1.33
Excess (+) or deficiency (−) of this month as compared with the normal −1.09
Accumulated excess (+) or deficiency (−) since January 1 −8.9

MEAN RELATIVE HUMIDITY (Percentage).

6 a. m., 83.6; local noon, 59.7; 6 p. m. 65.7

WIND.

Prevailing direction SW.; total movement 4,225 miles; average hourly velocity 7.2; maximum velocity (for five minutes) 22 miles per hour, from SW. on 28th.
Maximum wind velocity this month since 1904
(By four-cup anemometer) 41-NW, 1923

WEATHER.

Number of days, clear 5; partly cloudy 9; cloudy 14
on which .01 inch, or more, of precipitation occurred 7

MISCELLANEOUS PHENOMENA (dates of).

Auroras None; halos: solar 3, 4, 6, 16, lunar Non
Hail None; sleet None; fog 1, 19, light, 23
Thunderstorms None
*Frost: light .....; heavy .....; killing .....

NOTE.—"T" indicates trace of precipitation.

*The autumn frosts are not recorded after the occurrence of "killing," except in Florida and along the immediate coast of the Gulf of Mexico.

Received relative humidity, W. G. ARTHUR.

650 GOVERNMENT PRINTING OFFICE

Form No. 1030—Met'l.

U. S. DEPARTMENT OF AGRICULTURE.

WEATHER BUREAU.

MONTHLY

METEOROLOGICAL SUMMARY.

STATION

.....

.....

MONTH

....., 19

8—1650 U. S. GOVERNMENT PRINTING OFFICE: 1919